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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,727	08/09/2002	Robert Freedman	20.2760	4236

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EXAMINER

FETZNER, TIFFANY A

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,727

Applicant(s)

FREEDMAN, ROBERT

Examiner

Tiffany A Feltzner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 09 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 28-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 25-27 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. **Claims 1-24, and 28-32**, drawn to a method of evaluating formation fluids with nuclear magnetic measurement, classified in class 324, subclass 303.
 - II. **Claims 25-27**, drawn to A method of evaluating formation fluids of a gas-bearing formation, classified in class 702, subclasses 7-13; or class 324 subclasses 338 and 339.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because there are no nuclear magnetic measurements made in the formation fluid evaluation. The combination concerns any type of formation fluid evaluation while the subcombination is concerned with evaluating formation fluids with NMR measurements specifically . The subcombination has separate utility such as a nuclear magnetic resonance evaluation technique.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

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4. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.
5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
6. During a telephone conversation with Kevin McEnaney Reg. No. 46,258 on 08/26/2003 a provisional election was made **without traverse** to prosecute the nuclear magnetic resonance invention of group I, **claims 1-24, and 28-32**.
7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The examiner addresses each 112 issue for all the independent claims, after all of the different types of rejections are listed, to avoid repetition, and to make the issues for each claim clear.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. **Claims 1, 14, 28, 30, and 32** are rejected under **35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

B) Claims 1, 14, 28, 30, and 32 are rejected under **35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

C) Claims 1, 14, 28, 30, and 32 are rejected under **35 U.S.C. 112, second paragraph**, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

D) Claims 1, 14, 28, 30, and 32 are rejected under **35 U.S.C. 112, second paragraph**, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01

E) Claims 1, 14, 28, 30, and 32 are rejected under **35 U.S.C. 112, second paragraph**, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

11. With respect to **claim 1**, "A method for evaluating formation fluids, comprising: acquiring a nuclear magnetic resonance measurement; acquiring a dielectric measurement; and determining an oil volume fraction from the nuclear magnetic resonance measurement and the dielectric measurement".

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12. Applicant states that the claim is a method for evaluating formation fluids.

However in the claimed steps there is no formation fluid, no evaluation of formation fluid, and no usable structure.

13. **Claim 1** only requires that two measurements be acquired, (i.e. an NMR measurement and a dielectric measurement) and a third parameter (i.e. oil volume fraction) be determined from the other two measurements. This claim is simply a mathematical formula, or algorithm that says oil volume fraction is determined from an NMR measurement and a dielectric measurement, which is not useful and not statutory because an individual of ordinary skill in the art would not know, because there are numerous NMR measurements, which type of NMR measurement (i.e. T₁, T₂, spin density, T₂*; etc., to conduct) or which one of the numerous dielectric measurements, applicant desires to acquire. Limitations from the specification may not be read into the claims.

14. Additionally, because applicant's claim does not require a formation fluid; is silent as to how the NMR and dielectric measurements are related, or the means by which / how the method step of determining the oil volume fraction is determined; (i.e the equation used, the step of subtracting, adding, multiplying, or dividing), and does not claim the structure which is employed to carry out the method, an individual of ordinary skill in the art, would not be able to make or use the method to evaluate a formation fluid.

15. With respect to **claim 14**, "A method for evaluating a volume of formation fluids, comprising: acquiring a nuclear magnetic resonance measurement; acquiring a

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dielectric measurement; acquiring a bulk density measurement; solving a set of linear response equations representing a reservoir -fluid model to determine fractional fluid values from the nuclear magnetic resonance measurement, the dielectric measurement, and the bulk density measurement.”

16. Applicant’s **claim 14** preamble states that **claim 14** is a method for evaluating a volume formation fluids. However in the claimed steps there is no formation fluid, (i.e. the acquired measurements do not require that the measurements be performed on a formation fluid); there is no evaluation of formation fluid because a fractional fluid volume itself is not an evaluation; and no usable structure.

17. Additionally the examiner notes that the set of linear equations, are not required to be from the acquired measurements. Applicant is also missing the step of forming a set of linear equations from the acquired measurements. Applicant also fails to claim or specify what / which fractional fluid volume(s) is/are determined, The claim only states that fractional fluid volumes are determined from the nuclear magnetic resonance measurement, the dielectric measurement, and bulk density measurement.

18. The claim fails to specify the fractional fluid volume of what, in relation to some other missing piece or aspect of essential structure. The relationship of how the nuclear magnetic resonance measurement, the dielectric measurement, and bulk density measurement relate to one another is also missing. If applicant is attempting to claim using the above measurements, in a certain equation, then the equation which shows the essential relationship needs to be claimed. Method steps without structure that lack essential steps and structural relationships are not patentable because an individual of

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ordinary skill in the art would not be able to make or use the invention, because applicant's invention is not distinctly claimed.

19. With respect to **claim 28**, "A method for evaluating a formation traversed by a borehole, comprising: acquiring a nuclear magnetic resonance measurement; acquiring a dielectric measurement; and determining a rock-matrix travel time from the nuclear magnetic resonance measurement and the dielectric measurement."

20. Applicant's **claim 28** preamble states that **claim 28** is a method for evaluating a formation traversed by a borehole. However in the claimed steps there is no formation evaluation performed, and no usable structure for performing the method steps.

21. **Claim 28** only requires that two measurements be acquired, (i.e. an NMR measurement and a dielectric measurement) and a third parameter (i.e. a rock-matrix travel time) be determined from the other two measurements. This claim is simply a mathematical formula, or algorithm that says a rock-matrix travel time is determined from an NMR measurement and a dielectric measurement, which is not useful and not statutory because an individual of ordinary skill in the art would not know, because there are numerous NMR measurements, which type of NMR measurement (i.e. T₁, T₂, spin density, T₂*; etc., to conduct) or which one of the numerous dielectric measurements, applicant desires to acquire. Limitations from the specification may not be read into the claims.

22. Additionally, applicant's claim does not require a formation evaluation; does not require that the measurements made are from the formation traversed by the borehole; is silent as to how the NMR and dielectric measurements are related, or the means by

which / how the method step of determining rock-matrix travel time is determined; (i.e. the equation used, the step of subtracting, adding, multiplying, or dividing), and does not claim the structure which is employed to carry out the method; therefore an individual of ordinary skill in the art, would not be able to make or use the method to evaluate a formation traversed by a borehole,. If applicant is attempting to claim using the above measurements, in a certain equation, then the equation which shows the essential relationship needs to be claimed, and a evaluation step needs to be specified, with what is being evaluated distinctly claimed, and the fact that the measurements acquired are from a formation traversed by a borehole should be specified.

23. With respect to **claim 30**, "A method for evaluating a gas fractional volume in a gas-liquid sample, comprising: acquiring a bulk density measurement; acquiring a nuclear magnetic resonance measurement, and determining the gas fractional volume from the bulk density measurement and the nuclear magnetic resonance measurement."

24. Applicant's **claim 30** preamble states that **claim 30** is a method for evaluating a gas fractional volume in a gas-liquid sample. However in the claimed steps there is no gas-liquid sample; there is no step requiring the acquired measurements to be from a gas-liquid sample; and no requirement that an evaluation of the gas-liquid sample is made based on the determined fractional volume of gas. Applicant also fails to claim a usable structure for performing the method steps.

25. **Claim 30** only requires that two measurements be acquired, (i.e. an NMR measurement and a bulk density measurement) and a third parameter (i.e. a gas

fractional volume) be determined from the other two measurements. This claim is simply a mathematical formula, or algorithm that says a gas fractional volume is determined from an NMR measurement and a bulk density, which is not useful and not statutory because an individual of ordinary skill in the art would not know, because there are numerous NMR measurements, which type of NMR measurement (i.e. T₁, T₂, spin density, T₂*; etc., to conduct) or the type of "bulk density" measurement, applicant desires to acquire. Limitations from the specification may not be read into the claims.

26. Additionally, applicant's claim does not require an evaluation step, is silent as to how the NMR and "bulk density" measurements are related, or the means by which / how the method step of determining a gas fractional volume is determined; (i.e the equation used, the step of subtracting, adding, multiplying, or dividing), and does not claim the structure which is employed to carry out the method; therefore an individual of ordinary skill in the art, would not be able to make or use the method to evaluate a gas fractional volume in a gas-liquid sample, because these components are not claimed. If applicant is attempting to claim using the above measurements, in a certain equation, then the equation which shows the essential relationship needs to be claimed, and a evaluation step needs to be specified, with what is being evaluated distinctly claimed, and the fact that the measurements acquired are from a gas-liquid sample, also being specified.

27. With respect to **claim 32**, "A method for evaluating a formation traversed by a borehole, comprising: acquiring a dielectric measurement; determining a dielectric-derived water volume from the dielectric measurement; acquiring a suite of nuclear

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magnetic resonance measurements; deriving a water volume and an apparent heavy oil volume from the nuclear magnetic resonance measurements; and comparing the dielectric-derived water volume with the nuclear magnetic resonance derived water volume and the apparent oil volume to produce a true heavy oil volume.”

28. Applicant’s **claim 32** preamble states that **claim 32** is a method for evaluating a formation traversed by a borehole. However in the claimed steps there is no formation evaluation performed, because there is no formation comparison or evaluation in the claims, and no usable structure for performing the method steps. Applicant does not require that the acquired dielectric measurement is from a formation to be evaluated; and lacks teaching the means/relationship by which “a dielectric-derived water volume” is obtained “from the dielectric measurement”. Additionally, applicant does not require that the NMR measurements are from the formation traversed by the borehole and lacks teaching the means/relationship by which “a water volume” and an apparent “heavy oil volume” is obtained from the NMR measurements. The examiner also notes that the step/relationship of how the comparison step produces a true heavy oil volume is missing. The evaluation step for the true heavy oil volume is missing. The comparison step provides an evaluation step for dielectric-derived water volume, NMR derived water volume, and apparent water volume, but not an “evaluation” of a heavy oil volume. Limitations from the specification may not be read into the claims.

29. If applicant is attempting to claim using the above measurements, in a certain equation, then the equation which shows the essential relationship needs to be claimed, and a evaluation step for the heavy oil volume with the connection to the borehole

formation needs to be specified, with what is being evaluated distinctly claimed, and the fact that the measurements acquired are from a formation, also being specified.

30. **Claims 2-13, 15-24, 29, 31, and 32** are rejected under **35 USC § 112**, the first and second paragraphs provided above because they depend from independent **claims 1, 14, 28, and 30**.

31. With respect to claim 22, this claim has the same problems as independent claim 14, but the lack of an equation(s), to show the relationships, or the adaption applicant makes to an unspecified dielectric response equation, and the interconnections of all the specified parameters make this entire claim problematic, vague and indefinite. It is not clearly stated. Numerous corrections are needed.

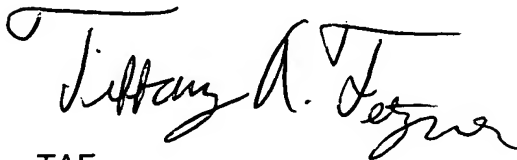
32. In view of the rejection of **claims 1-24 and 28-32** under **35 USC § 112**, no art has been developed for these claims because improper speculation as to the scope and meaning of the claims would be required by the examiner. See *In re Steele* 134 USPQ 292.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is (703) 305-0430. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3432 .

35. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.



TAF

August 28, 2003



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800